



## ***B. Tech Degree I & II Semester Examination in Marine Engineering, May 2009***

### **MRE 106 ENGINEERING GRAPHICS**

Time : 3 Hours

Maximum Marks : 100

- I. (a) The distance between two fixed points is 90 mm. A point P moves such that the difference of its distances from the two fixed points is always equal to 60 mm. Draw the loci of P. (10)
- (b) The distance between Coimbatore to Chennai is 500 Km. A train takes 10 hours to cover this distance. Construct a plain scale to measure up to a single minute. R.F. of the scale is  $\frac{1}{2} \times 10^5$ . Indicate in it the distance covered by the train in 47 minutes. (10)
- OR**
- II. (a) Construct a conic, when the distance between its focus and directrix is equal to 40 mm and its eccentricity is one. Name the curve. Draw a tangent and normal at any point on the curve. (10)
- (b) A coil is unwound from a drum of 30 mm diameter. Draw the locus of the free end of the coil for unwinding through an angle of  $360^\circ$ . Draw also a normal and tangent at any point on the curve. (10)
- III. A line AB 120 mm long has its end A in the H.P. 40 mm in front of the V.P. and its other end B in the V.P. 70 mm above the H.P. Draw its projection and determine its inclination with the coordinate planes. (20)
- OR**
- IV. Draw the projection of a rhombus, having diagonals 120 mm and 60 mm long, the smaller diagonal of which is parallel to both the principal plane, while the other is inclined at  $30^\circ$  to H.P. (20)
- V. A cylinder of 50 mm diameter and 75 mm length is freely suspended from a point on its top edge with its axis parallel to the V.P. Draw its projection. (20)
- OR**
- VI. A cone of base 60 mm and height 90 mm rests with its base on the H.P. It is cut by an inclined section plane parallel to a generator and passing through the mid point of its axis. Draw the sectional plan and true shape of section. (20)
- VII. A regular tetrahedron of side 60 mm rests with a face on the H.P. and an edge of that face parallel to the V.P. It is cut into two portion by a vertical plane parallel to the V.P. and passing through its axis which is vertical. Draw a development of the larger portion. (20)
- OR**
- VIII. A vertical cylinder of 80 mm diameter is penetrated by another cylinder of 50 mm diameter. The axis of the penetrating cylinder is inclined at  $30^\circ$  with HP and parallel to VP. Draw the projection of the cylinders, showing the lines of intersection, where the axis of two cylinders intersect each other. (20)
- IX. A sphere of diameter 40 mm rests centrally on the top of the frustum of a cone, diameter of base 50 mm, diameter of top 30 mm and height 60 mm. Draw an isometric view of the solids. (20)
- OR**
- X. A cylinder of diameter 30 mm and height 50 mm rests on its base on the ground with its axis 35 mm behind the PP. The eye is 25 mm to the left of the axis, 100 mm in front of the PP and 60 mm above the ground. Draw the perspective view of the cylinder. (20)